

REMARKS

This is intended as a full and complete response to the Office Action dated August 25, 2004, having a shortened statutory period for response set to expire on November 25, 2004. Claims 1-31 remain pending in the application and are shown above. Claims 1-20 are rejected by the examiner. Claims 21-31 are indicated to be allowable by the Examiner. Reconsideration of the rejected claims is requested for reasons presented below.

In the specification, the paragraphs [0038] and [0044] have been amended to indicate the issuance of previously pending patent applications.

Claim 10 stands objected to based on an informality. Claim 10 has been amended to clarify the invention. These amendments are not presented to distinguish a reference, thus, the claims as amended are entitled to a full range of equivalents if not previously amended to distinguish a reference. Withdrawal of the rejection is respectfully requested.

Claims 15-18 stand rejected under 35 U.S.C. § 112, second paragraph. Claims 15-18 have been amended to clarify the invention. Claim 6 and 26 have been amended to provide proper antecedent basis. These amendments are not presented to distinguish a reference, thus, the claims as amended are entitled to a full range of equivalents if not previously amended to distinguish a reference. Withdrawal of the rejection is respectfully requested.

Additionally, claims 7, 8, 11, 20, 27, 28, and 31 have been amended to clarify the invention. These amendments are not presented to distinguish a reference, thus, the claims as amended are entitled to a full range of equivalents if not previously amended to distinguish a reference.

Claims 1-20 are rejected under 35 U.S.C. § 102(b) as being anticipated by, or alternatively, rejected under 35 U.S.C. § 103(a) as being unpatentable over, *Kim et al.* (U.S. Patent No. 6,113,465). The Examiner asserts that *Kim et al.* discloses the subject matter as recited in claims 1, 2, and 4, or alternatively, that it would have been obvious to one of ordinary skill in the art at the time the invention was made to operate the

polishing apparatus of *Kim et al.*, in order to vary the polishing times, speeds, and results, since discovering the optimum or workable ranges involves only routine skill in the art. Applicants respectfully traverse this rejection.

Kim et al. discloses a process of polishing a wafer by initiating a low down force with high polishing speed process to facilitate removal of the thin film layer, and the followed by a high down force pressure and low polishing speed to facilitate removal of the thin film layer. *Kim et al.* discloses a recipe that contacts a substrate with a polishing pad at a constant carrier rotation and constant polishing pad rpm, then increases down force pressure and reduces polishing pad rpm after a temporary polishing pad rpm increase while at a constant carrier rotation, and decreases down force at a constant carrier rotation and polishing pad rpm, and removes the substrate from contact with the polishing pad and then increases both carrier rotation and polishing pad rpm when the substrate no longer contacts the polishing pad. (See, col. 7, line 13, to col. 8, line 9; Figure 7)

Kim et al. does not teach, show, or suggest positioning the substrate in a polishing apparatus having a rotational carrier head and a rotatable platen, wherein the substrate is disposed in the rotational carrier head and the platen has a polishing article disposed thereon, rotating the carrier head at a first carrier head rotational rate and rotating the platen at a first platen rotational rate, contacting the substrate with the polishing article at a polishing pressure of less than about 2 psi, accelerating the first carrier head rotational rate to a second carrier head rotational rate and accelerating the first platen rotational rate to a second platen rotational rate, and removing a substantial portion of the conductive material from the substrate at the second carrier head rotational rate and at the second platen rotational rate, as recited in claim 1, and claims dependent thereon. Withdrawal of the rejection is respectfully requested.

Kim et al. does not teach, show, or suggest positioning the substrate in a rotational carrier head, rotating the rotational carrier head at a carrier head rotational rate of about 80 rpm or less, rotating a platen at a platen rotational rate of about 80 rpm or less, wherein the platen has a polishing article disposed thereon, contacting the substrate and the polishing article at a polishing pressure between about 0.1 psi and less than about 2 psi, rotating the rotational carrier head at a carrier head rotational rate

between greater than about 120 rpm and about 500 rpm or less, rotating the platen at a platen rotational rate between greater than about 120 rpm and about 750 rpm or less; and removing a substantial portion of the conductive material from the substrate, as recited in claim 12, and claims dependent thereon. Withdrawal of the rejection is respectfully requested.

Kim et al. does not teach, show, or suggest contacting the substrate with a polishing article at a polishing pressure of less than about 2 psi to remove a substantial portion of the conductive material, wherein the substrate is disposed in a carrier head having a first carrier head rotational rate and the substrate is contacted with a polishing material disposed on the platen having a first platen rotational rate, reducing the first carrier head rotational rate to a second carrier head rotational rate less than the first carrier head rotational rate, decelerating the first platen rotational rate to a second platen rotational rate less than the first platen rotational rate, and removing the substrate from contact with the polishing material disposed on the platen, as recited in claim 16. Withdrawal of the rejection is respectfully requested.

Further *Kim et al.*, discloses processing parameters for the two step polishing process described above for *Kim et al.* However, *Kim et al.* does not suggest or motivate processing parameters, including, but not limited to, the polishing pressures, carrier rotational rates, and corresponding acceleration and deceleration rates, for the processes distinguished in the arguments above for claims 1, 12, 16, and claims dependent thereon. Therefore, discovering the optimum or workable ranges of *Kim et al.* would not teach, show, or suggest the processing parameters as recited in claims 1-20. Withdrawal of the rejection is respectfully requested.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the office action. Therefore, Applicant believes that a detailed discussion of the secondary references is not necessary for a full and complete response to this office action.

Having addressed all issues set out in the office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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